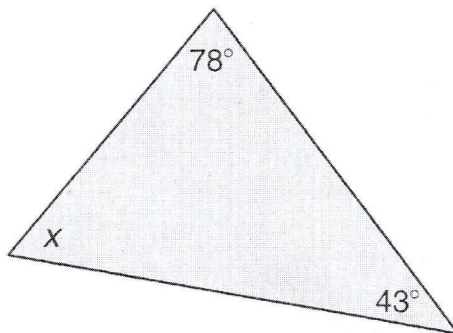


Angle Geometry Review

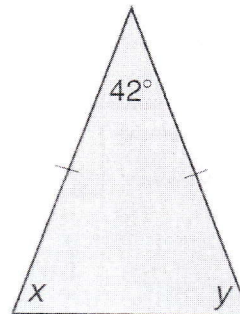
p. 106 #3. Determine the angle measure indicated by each letter.

a)



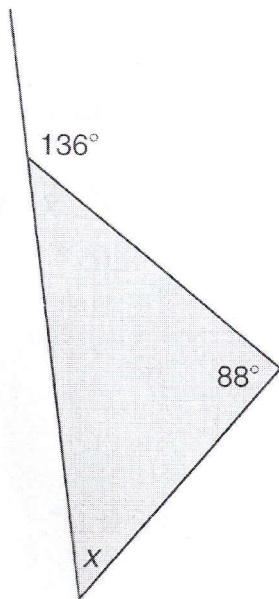
$$\begin{aligned}\angle x &= 180^\circ - 78^\circ - 43^\circ \\ \angle x &= 59^\circ\end{aligned}$$

b)



$$\begin{aligned}\angle x \neq \angle y &= (180^\circ - 42^\circ) \div 2 \\ \angle x &= 69^\circ \\ \angle y &= 69^\circ\end{aligned}$$

c)

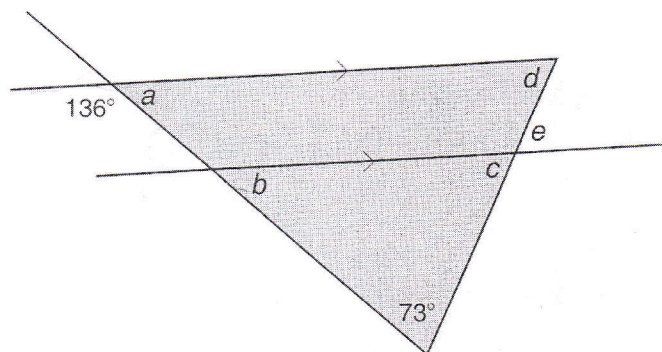


$$\begin{aligned}\angle x &= 136^\circ - 88^\circ \\ &= 48^\circ\end{aligned}$$

p.106 #4. Determine the angle measure indicated by each letter.

Justification

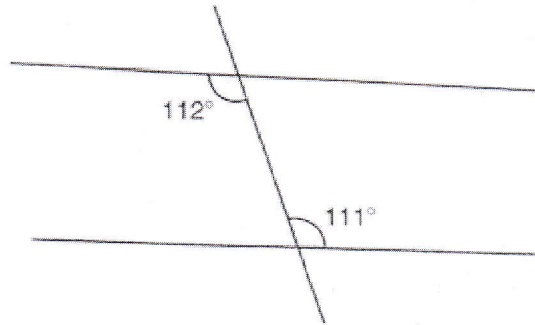
$$\begin{aligned}\angle a &= 44^\circ && \text{(SA)} \\ \angle b &= 44^\circ && \text{(Fpattern)} \\ \angle d &= 63^\circ && \text{(SAT)} \\ \angle c &= 63^\circ && \text{(Fpattern)} \\ \angle e &= 63^\circ && \text{(OA)}\end{aligned}$$



p.106 #5. Are these lines parallel?

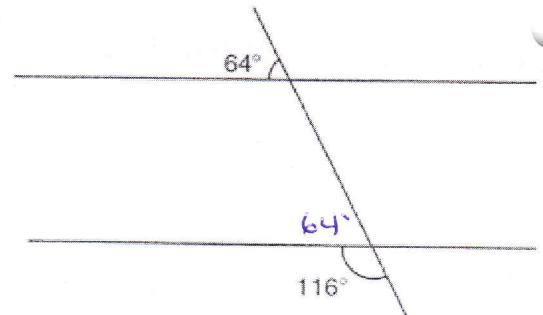
Justify your answer.

a)



lines are not parallel since
 112° does not equal 111°
(Z pattern)

b)



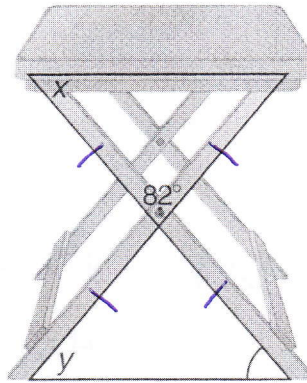
lines are parallel
since $116^\circ + 64^\circ = 180^\circ$
(F pattern)

p.107 #6. The top of this TV

table is parallel
to the ground.

The triangles
are isosceles.

Determine the
measures of the
labelled angles.



$$\begin{aligned} &= 180^\circ - 82^\circ \\ &= 98^\circ \div 2 \\ &= 49 \end{aligned}$$

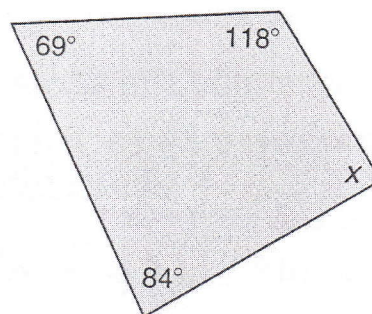
$\therefore \angle x \text{ \& } \angle y \text{ are } 49^\circ$

p.107 #7. Determine the angle measure

indicated by each letter.

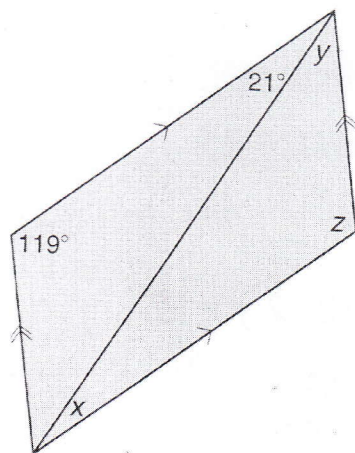
Justify your answer.

a)



$$\begin{aligned} \angle x &= 360^\circ - 84^\circ - 118^\circ - 69^\circ \\ &= 89^\circ \end{aligned}$$

b)

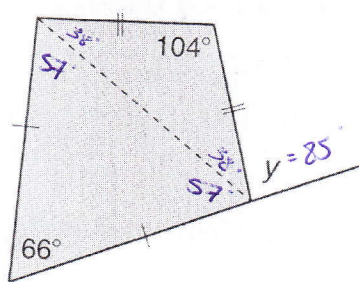


$$\angle Y = 40^\circ$$

$$\angle X = 21^\circ$$

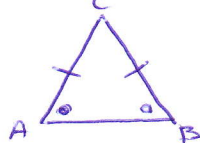
$$\angle Z = 119^\circ$$

c)



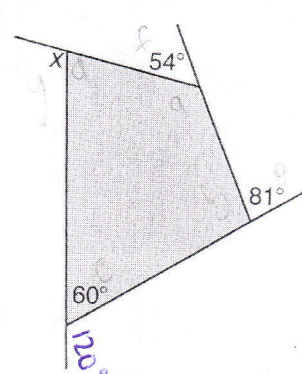
$$\angle Y = 85^\circ$$

Isosceles
two angles are
the same



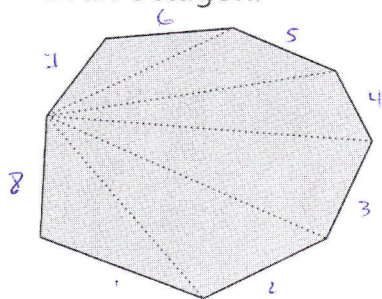
$$\angle A = \angle B$$

d)



$$\begin{aligned}\angle X &= 360^\circ - 120^\circ - 81^\circ - 54^\circ \\ &= 105^\circ\end{aligned}$$

P.107 #8. a) Use this diagram to determine the sum of the interior angles in an octagon.



$$\begin{aligned}S &= (n-2) \times 180^\circ \\ &= (8-2) \times 180^\circ \\ &= 1080\end{aligned}$$

b) A regular octagon has 8 equal sides and 8 equal angles. Determine each measure:

- i) an interior angle
- ii) an exterior angle

$$\begin{aligned}S &= (n-2) \times 180^\circ \\ &= (8-2) \times 180^\circ \\ &= 6 \times 180^\circ \\ &= 1080\end{aligned}$$

$$\begin{aligned}&= 1080 \div 8 \\ &= 135^\circ\end{aligned}$$

\therefore interior angles are all 135°

ii) exterior angles in any polygon is $360 \div 8 = 45^\circ$

p.107 # 9. Determine the sum of the interior angles of a polygon with each number of sides. Try to do this two different ways.

a) 6 sides b) 12 sides c) 18 sides

$$\begin{aligned} S &= (6-2) \times 180^\circ \\ &= 4 \times 180^\circ \\ &= 720^\circ \end{aligned}$$

$$\begin{aligned} S &= (12-2) \times 180^\circ \\ &= (10) \times 180^\circ \\ &= 1800^\circ \end{aligned}$$

$$\begin{aligned} S &= (18-2) \times 180^\circ \\ &= (16) \times 180^\circ \\ &= 2880^\circ \end{aligned}$$

p.107 #11. A regular polygon has 100 sides. Determine the measure of one interior angle and one exterior angle.

$$\begin{aligned} S &= (100-2) \times 180^\circ \\ &= 17640^\circ \div 100 \\ &= 176.4 \text{ (interior angle)} \end{aligned}$$

$$\begin{aligned} \text{exterior angle} &= 360^\circ \div 100 \\ &= 3.6^\circ \end{aligned}$$

p.108 #5

Application On a baseball diamond, home plate has the shape of a pentagon.

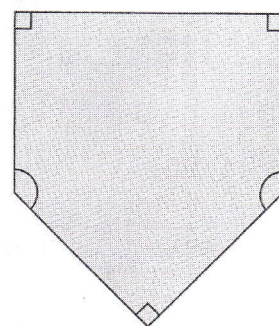
The pentagon has 3 right angles.

The other 2 other angles are equal.

a) What is the sum of the angles of a pentagon?

b) What is the measure of each equal angle?

How do you know?



$$\begin{aligned} \text{a) } S &= (5-2) \times 180^\circ \\ &= 540^\circ \end{aligned}$$

$$\begin{aligned} \text{b) } &= 540^\circ - 90^\circ - 90^\circ - 90^\circ \\ &= 270^\circ \div 2 \\ &= 135^\circ \end{aligned}$$